Release Note

SJ RESEARCH

Nexus Networking software upgrades

Scope / Overview

These instructions relate to installing a new version of networking software on a Nexus disc sharer. **Before attempting this upgrade** you must check the software release which your Nexus system is currently running; please refer to *Note N1* at the end of this documentation. This upgrade may be accompanied by ROM upgrades for your Routers, Hubs and Archimedes client cards; separate instructions will be provided for such upgrades. Unless you have been advised otherwise by SJ Research Technical Support you will normally want to carry out the upgrade described in this note before carrying out any ROM changes.

There are four stages to the upgrade, all of which must be carried out. Failing to perform one or more of the stages may result in the software failing to function correctly and may create a situation which is difficult to rectify. These stages are:

- **Update the Nexus sharer software**: *Using !PartEdit*. The new software will not be run until the disc sharer is re-booted. Read these instructions carefully for instructions about the point at which you should re-boot the Nexus disc sharer.
- **Update the !Boot application**: Any changes will only be effective when the computers are next re-booted. If you have also been sent Router, Hub and Archimedes client ROM upgrades it may be necessary to perform these before the computers will re-boot successfully.
- **Update the !System application**: The updated !Boot application may require updates to the !System application before it will function.
- **Update the Library directory**: This is not strictly essential but some of the utilities in the Library directory are useful.

In almost all cases the last three stages will be carried out in a single operation by running the installation program *!NexInstal* supplied on the *Nexus Networking disc 2* floppy disc.

The instructions given below assume some familiarity with the Archimedes computer and the Nexus disc sharer. If any aspect of these instructions is unclear please contact the SJ Research Technical Support line.

Instructions

A: Update the Nexus sharer software:

Go onto your Nexus management computer. Put the sharer into 'Admin.' mode. Run the **!PartEdit** application from the *Nexus Networking Disc 1* supplied with this note. Once PartEdit is installed on the Icon Bar press **Select** over its icon to open the Partition Editor window. If you have not previously run PartEdit version 2.77 or later (and moved the printer sharer partition) you will be asked if you want to move the printer sharer partition to the centre of the disc; **we strongly recommend that you do so**. Please refer to *Note N9* for more information on this operation.

Once the main Partedit window has opened (showing the amount of space allocated to each Nexus partition) move into this window and Press **Menu**. From the menu move out through the **Install Software** option. This will present a window telling you the software version currently on the Nexus hard disc and the version on the floppy disc. If these are different then normally you should proceed with the upgrade (but see next paragraph).

In exceptional circumstances, the version of software on the floppy disc will be earlier than that on the Nexus hard disc. In this situation PartEdit will advise you of this fact and advise you to abort the installation. If the release is intended to move back to an earlier version of the server software there should be an additional sheet with these instructions advising you of this fact – in the absence of such a sheet please contact the Technical Support line at SJ Research before proceeding with the installation. If appropriate, proceed with the installation of the earlier software version.

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Close the Partition Editor window and quit PartEdit from the Icon Bar. Return the disc sharer's key to the 'Secure' position. Note that although you will have to turn the disc sharer off and on again before it will be running the newer software; **do not do so at this stage**.

Note that this operation will have to be carried out on each disc sharer on your Nexus network – there is no way of copying the disc sharer code directly from one sharer to another.

B: Update the !Boot, !System and Library applications on the Nexus hard disc:

This process includes replacing the existing Nexus !Boot application with the new !Boot from the *Nexus Networking Disc 1* floppy disc. If you have configured your Boot sequence in any way you will need to repeat the configuration procedure on the new !Boot application. The upgrade process ensures you have a copy of your old !Boot to facilitate doing this.

1. The Nexus disc sharer needs to be in 'Admin.' mode and you must be working on your Nexus management computer.
2. Open a window onto the shared drive of your Nexus disc sharer (drive 4). If there is a directory Old in this window please check its contents and either delete the directory or rename it.
3. Using the menu on the Nexus shared drive icon, check that there is at least 10MB of free space on your shared drive. If not please refer to *Note N3* at the end of this document.
4. Having made enough space for the upgrade procedure, press **Menu** over the Nexus shared drive icon. Click **Select** over the **Checkmap** option; this checks that the free space map of the shared drive is valid. **If it is not you will need to backup your data and re-format your shared drive using !PartEdit.**
5. Insert the *Nexus Networking Disc 2* floppy disc in the disc drive and open a window onto it. In this window you will see an application **!NexInstal**; double-click on this application to run the installation program. During the installation process you will be asked whether you want to use virtual Econet; if your Nexus system includes a Hub you should answer 'Yes', otherwise the answer is 'No'.
6. The installation process copies your old boot sequence (together with the old **!System** and **Library**) into a directory **Old**. Any changes you had made to !Boot will need to be applied to the new !Boot. Normally you will be able to simply copy your alterations from those files in **Old.!Boot** into the corresponding new file. (Note that in the new **Deskstart** file the line which sets NexusFiler$Options now has an additional parameter, T120. This controls the time for which Nexus message windows are displayed, in seconds. You are advised not to delete this parameter.)

   Any other changes you may have made to !Boot will need to be copied from the old !Boot to the new one; in particular, if you have copied anything into the directories inside !Boot (Apps, Mods200, Mods310, Modules, NexusFiler and Resources) this will have to be moved back into the corresponding directory in the new !Boot. **Our recommendation** it that the only one of these directories where system managers should install anything is **Apps**; the other directories should be regarded as being for "system use only".
7. Check that !System has been upgraded correctly. If the !Run or !Boot files within !System have been altered (e.g. by the installation program supplied with Computer Concepts' Style) these changes may not have been preserved in the upgrade; see *Note N5* below.
8. Dismount the Nexus drive 4 (from its icon bar menu) and return the key to the 'Secure' position.

   If you are already running Release 2 software (see *Note N1* below) try re-booting a computer **other than the management computer**. If this station boots successfully then try re-booting all the stations **except** for the management computer. If these all boot correctly then re-boot the management computer. (This process means that if there is something wrong with the new boot sequence the management computer has not been affected and can still be used to put things right.)

   If you are not running Release 2 software you cannot be so cautious in trying out the new !Boot, and will need to proceed straight to the next stage. If the new !Boot fails to work (or if you are running Release 2 software and your management computer needs to be re-started) *Note N2* below describes how to re-establish the connection between the management computer and the disc sharer.

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9. Check that no computers are accessing the Nexus disc sharer and turn the key from 'Secure' to 'Off'. Wait at least 5 seconds before turning the key back to 'Secure'. Re-starting the disc sharer in this way makes it run the new disc sharer code which was installed earlier with !PartEdit.
10. If you have not already done so, re-boot all of the computers on this disc sharer. This will run the new boot sequence. Check that all computers boot successfully and that any changes you have made to the boot sequence are executed correctly. (If not, take the server back into 'Admin.' mode and correct !Boot, remembering that your old !Boot is still in $.Old.!Boot. Then switch the server back to 'Secure' and re-boot all of the computers on this disc sharer. Repeat as required; see *Note N2* if you are unable to re-boot the management computer.)
11. When you are certain that all is well, take the server into 'Admin' mode once more and delete the **$.Old** directory and all its contents. (If you have enough disc space – and provided you have not just upgraded from Release 1 to Release 2 – you may choose to keep the $.Old directory and contents, "just in case", until the next upgrade. **Do not** keep a copy of !Boot which relates to Release 1, although you could keep the PreDesktop and Deskstart files from inside !Boot.) Once you have deleted the $.Old directory take the server back to 'Secure' mode.

C: Update any additional Nexus disc sharers on your system:

If you are upgrading your Nexus systems from Release 1 then you will have to perform the complete upgrade, as described above, on each disc sharer. Similarly if the management computer for a Nexus disc sharer is a RISC OS 2 computer you will have to follow the above instructions for that disc sharer.

Where a second or subsequent Nexus system is already Release 2 (refer to *Note N1*), its management computer is a RISC OS 3 machine and it is linked to a disc sharer which has already been upgraded you may find it more convenient to follow these instructions:

1. Upgrade the server code with !PartEdit, as described above. Leave the server in 'Admin' mode.
2. Check that you have at least 10MB of free disc space and that the disc map is consistent (see above). Delete or re-name any existing directory (and contents) called $.Old, and then use the Filer menu to create a new directory called $.Old. Open directory displays onto $ and onto $.Old and **with the shift key held down** drag !Boot from $ to $.Old. This **moves** the entire contents of !Boot from $ into $.Old.
3. Go to the Filer **Options** sub-menu and ensure that 'Confirm' is off and 'Verbose', 'Force' and 'Newer' are on (ie. ticked). Now use the menu from the Nexus icon to mount the shared drive of the Nexus server that you have already upgraded. You will need to know its serial number to do this; this is written on the rear of the disc sharer (or can be found using !NexusMap; see *Note N4* below. You need to run NexusMap on a computer attached to the upgraded Nexus).
4. Drag $.!Boot from the remote sharer to the local one. This will copy across any changes you have made to !Boot on the remote sharer.

   If the boot sequence on the server you are currently upgrading needs to be different from that on the sharer you are copying from you will need to modify !Boot appropriately. You may wish to do so by copying from the PreDesktop and Deskstart files within the copy of !Boot which is in directory Old into the corresponding files inside the new !Boot.

   Note that the Nexus !Boot application now provides a variable *Nexus$Server* which is set to the serial number of the local disc sharer; this can be useful in setting up a !Boot which is identical on all disc sharers.
5. Use the !SysMerge utility (a copy of this will be found in the Utilities directory on the *Nexus Networking Disc 2* floppy disc) to update !System on the current disc sharer. Within SysMerge the Master !System is the one on the **current** Nexus disc sharer, while the New !System is the copy on the disc sharer which has already been upgraded. See *Note N5* regarding possible problems in upgrading !System.
6. Drag the Library directory from the first disc sharer into the $ directory on this sharer. This will copy across everything that is newer (this is why the Filer options had to be set correctly earlier). This is a very similar operation to using !SysMerge, but there is no automatic tool for doing it.

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7. **Remember to Dismount the "remote" disc sharer from its icon bar menu when you have finished copying from it.**
8. Switch the disc sharer you have been updating back to 'Secure' mode; check that computers boot from it successfully (we suggest you adopt the strategy outlined in the previous section).
9. When all is working correctly delete the **Old** directory from the Nexus hard disc. You will probably also want to turn the 'Force' option in the Filer Options sub-menu off.
10. Upgrade all of your remaining servers in the same manner.

Additional Notes

N1. Determining your current Nexus release.

Go to a computer which has booted from your Nexus disc sharer (i.e. one that you know will work with your Nexus in its current state). Press F12 and enter `*Podules`. You will obtain a response like:

```
Podule 0: Nexus Network Interface 2.17 (Standard Card)
Podule 1: No installed podule
Podule 2: No installed podule
Podule 3: No installed podule
```

Refer to the line which relates to Nexus and note the (version) number from it (2.17 in the example above). This number is the key to your current Nexus release, viz:

Number less than 1.00: Your Nexus is an older disc sharer system (without hardware support for Nexus networking). ***This upgrade cannot be applied to your system.***

Number greater than 2.13: Your Nexus is currently running a **Release 2** version of Nexus networking. The upgrade can be carried out exactly as described in these instructions. Any Router or Hub ROM upgrades supplied with this upgrade can be carried out either before or after the upgrade described in these notes.

Number between 1.00 and 2.13: Your Nexus is currently running a ***Release 1*** version of Nexus networking. This upgrade, **together with the ROM upgrades supplied with it** (to Router, Hub and interface card ROMs) upgrades your system to Release 2. Please note the following:

- Do not attempt to carry out this upgrade unless you have also been supplied with ROM upgrades. Contact our Technical Support line for advice if you do not have the ROM upgrades for all your Routers, Hubs and interface cards.
- Upgrade the Nexus disc sharer code as described in ***section A*** of the instructions. **Do not turn off the disc sharer or re-boot the management computer at this stage.**
- Upgrade !Boot, !System and Library as described in ***section B*** of these notes. You will not be able to proceed beyond **stage 7** of the upgrade. At that point dismount the Nexus drive 4 and turn the disc sharer off. Upgrade the Router, Hub and interface card ROMs **throughout this Nexus cluster**. Separate instructions will have been supplied for these upgrades.
- When the ROM upgrades are complete turn the Nexus sharer on again and wait for it to boot up ('Run' light fading in and out). Make sure all Routers / Hubs are powered on. Power up the computers and check that they boot correctly. If all is well carry out stage 10 from section B.

  If your computers fail to boot at this stage refer to ***Note N2*** for instructions on how to restore the Nexus icons on the management computer to allow you to correct the boot sequence.

N2. Loading the Nexus client software to a computer which won't boot from Nexus

The situation may arise where a fault in the Nexus boot sequence means that computers won't boot from Nexus. Unfortunately this means that the management computer can't access the Nexus disc sharer to correct the !Boot application. Fortunately this is easily circumvented, as follows:

1. Remove the Nexus lead from the back of the computer. Re-power the computer.
2. Insert the appropriate ***Nexus Networking Disc 1*** into the computer's floppy drive. If you are upgrading from Release 1 to Release 2 and have not yet changed the Router/Hub/Client card ROMs, and not forced the disc

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sharer to start running the new disc sharer software, the appropriate disc is the one you were originally supplied with; otherwise it is the disc supplied with these notes.

3. Open a window onto the floppy disc. Double-click on the !Boot icon. After a little while the Nexus icons :4 and :5 will appear on the icon bar.
4. Re-connect the Nexus lead. The computer should now be able to access the disc sharer.

N3. What to do if your Nexus disc does not have 10Mb free space

The requirement for 10Mbyte of free space on the Nexus hard disc is because the NexInstal program re-names the existing !Boot, !System and the Nexus files from Library into the **Old** directory. It then installs the new !Boot and !System and re-integrates the original !System with the new one. In many situations the 10Mb free space requirement will be an over-estimate. However, if your hard disc is almost full and you cannot find any unwanted files you can delete then attempting to run NexInstal is likely to fail with a "disc full" error. One way of reducing the likelihood of this happening is to copy the !Boot from the Nexus hard disc onto a floppy disc and then delete !Boot from the Nexus hard disc. **Remember that once you have done this your computers will not be able to boot from the Nexus until the upgrade has been carried out successfully.** In particular, you should endeavour not to reset the management computer until the upgrade is complete (but see *Note N2* if you do). Similarly, if you do get an error while running NexInstal you should not re-boot the management computer. Note the error and contact the Technical Support line for advice. If you do have to re-boot the management computer refer to *Note N2* for instructions on how to restore the Nexus icons to its icon bar.

N4. The NexusMap Utility

On the *Nexus Networking Disc 2* floppy disc, in directory Utilities, there is an application **!NexusMap**. Double-clicking on this produces a textual "map" of your Nexus network. This map includes information about each of the components of your Nexus network, including the versions of the ROMs installed in the Routers and Hubs, and the serial number of each of the Nexus disc sharers. A summary of the software versions found is printed at the end of the map.

The NexusMap program runs in a Task Window on a RISC OS 3 computer. Pressing **Menu** within this window brings up a menu which includes Edit as an option. Once the Map has been completed, pressing **Menu** and choosing **Edit=>Save** allows you to save a copy of the map; alternatively you can drop the Text icon onto a printer driver to obtain a printed copy of the Map. We would be very grateful if you could put a copy of the map onto a floppy disc and send it to us for our records – this will give us the opportunity to check that all your software, etc. is up to date. We will return your disc if you ask us to.

An Application Note on ***Using NexusMap to check your cluster configuration*** is included with this release.

N5. Possible problems with upgrading !System

We have had reports of the process of upgrading !System failing to work successfully. This appears to be due to an incorrect datestamp on the !Run file inside !System; the result is that the rest of !System is upgraded but you are left with the previous !Run file. To check whether !System has been upgraded correctly you should move into !System (shift-double click on the !System icon) and load the !Run file into Edit. It should say something like (with blank lines removed):

```
| !Run file for !System, version 0.61a (10-Dec-1993)
IconSprites <Obey$Dir>.!Sprites
Set System$Dir <Obey$Dir>
Run <System$Dir>.SetPath
```

The important line is `Run <System$Dir>.SetPath`. If this line does not appear then, working on your management computer and with the Nexus disc sharer in 'Admin.' mode, you need to:

1. Open a window onto the *Nexus Networking Disc 1* and then open a window onto the contents of the !System on that disc.
2. Rename the !Run file in the copy of !System on the Nexus hard disc (we suggest you rename the file to !Run2). (Renaming rather than deleting will make it easier to recover a working system if something goes wrong at the next stage.)
3. Copy !Run from the copy of !System on the floppy disc into the copy of !System on the Nexus hard disc.

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4. Turn the Nexus disc sharer back to Secure mode; try booting one of the other computers from it (**not the management computer**).
5. Turn the sharer back into 'Admin.' mode. Assuming everything worked at stage 4 you should delete the !Run2 file from inside !System on the Nexus hard disc. Return the sharer to 'Secure' mode.

The version of !System provided with current releases of Nexus software has been re-datestamped by Acorn to avoid this problem. Unfortunately this in turn may introduce a further problem. Computer Concepts' Impression Style Install program (Style version 3.03) includes an option to modify the !System.!Boot file to force loading of new MessageTrans and FontManager modules on a RISC OS 3.1 computer. (These modules make automatic kerning reliable; however loading them is only recommended on computers with 4Mb or more memory.) If Style installation was carried out **before** the date stamped on the new !System.!Boot file on the Nexus release discs then the changes will be lost during the current upgrade. If you have installed Impression Style with this option you should check that !System.!Boot remains correct. Move into !System, as described above, and load !Boot into Edit. The last few lines of the file should be something like:

```
If Sys$OSVersion >= 310 Then RMensure MessageTrans 0.27 RmLoad System:Modules.MsgTrans
If Sys$OSVersion >= 310 Then Run System:CloseMess
If Sys$OSVersion >= 310 Then RMensure FontManager 3.28 RMLoad System:Modules.Fonts
```

If this is not the case, and you require the MessageTrans and FontManager options for Impression Style, then you will need to either copy these lines into your !Boot file by hand (from the copy of !System in the **Old** directory, if you have not deleted it yet), or re-install Impression Style.

N6. Problems with connections to Ethernet

Over the last few weeks our R&D Engineers have spent a lot of time "on site" investigating problems on complex networks incorporating gateways between Nexus and Ethernet (gatewaying both AUN and TCP/IP traffic). During this period we have produced a "patch" for the !Gateway software which suppresses a number of the problems. If you believe you may be experiencing problems in this area please contact our Technical Support line for advice (please note that it may then be necessary for one of our R&D engineers to ring you back).

In addition to these software issues, some care is needed in the choice of Ethernet interface card for use in a gateway machine. The old issue I and II Acorn Ethernet cards are not recommended, and Acorn advise that you replace any that may still be on your network. The issue III Acorn Ethernet cards should only be used for gateways on an A400/1, A540, A5000, or Risc PC 600†; in any other machines, the Ethernet and Nexus cards will not function properly together. There is an upgrade to the issue III Ethernet card available which circumvents this problem; please contact your Acorn Dealer for details of availability.

Similar comments apply to Atomwide's range of Ethernet cards, and you are advised to contact Atomwide directly concerning the availability of upgrades. Regrettably we have been unable to assess the suitability of cards from other manufacturers for use in a gateway machine. Should trouble arise, it is worth bearing in mind that things are rarely as they seem in a complex network; it is not uncommon for a problem originating on the Nexus side of a gateway to appear on the Ethernet side, and vice versa.

N7. Problems with "floating" cables

Occasionally, some sites have found it useful to disconnect cables between two Nexus Hubs. When doing this, it is important to unplug the Nexus cable from the Hubs at **both** of its ends, otherwise stray reflections on the loose cable can convince a Hub that it is connected to a nonsensical network. This has unfortunate consequences for the entire network, as the Hub continually attempts to rectify the perceived fault.

Floating cables on routers can also cause reflections to occur, but this has no effect beyond slowing the router down slightly.

N8. Problems with NetFS

This upgrade includes a new release of Acorn's NetFS module, version 5.84, **for RISC OS 3.10 and later only.** This fixes a number of problems to do with accessing the network, so RISC OS 3 machines will generally find that communicating with file servers becomes more reliable. Machines running RISC OS 2 will continue to load the old NetFS 5.60. Since Acorn are no longer providing full support for RISC OS 2 if you are suffering from reliability problems you will probably be best advised to upgrade to RISC OS 3.

†An issue III Acorn or Atomwide Ethernet card can *only* be used in a Risc PC with a Nexus interface card if one or other of the cards is in the network slot. The signals from the network slot are routed separately within the Risc PC, preventing the conflict that normally occurs.

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Unfortunately, the modifications to NetFS 5.84 cause some problems to manifest themselves in the Level 4 file server. Acorn are aware of these problems and are investigating the causes, but in the mean time if the file server is found to be too unreliable, we recommend downgrading back to the previous version of NetFS. Be warned that in doing this downgrade to make the server more reliable, you are making the clients less reliable!

N9. !PartEdit 2.77 and later

This upgrade includes a version of !PartEdit which (optionally) changes where the print sharer partition is located on the Nexus hard disc. **We strongly recommend that the printer sharer partition is moved in this way**; indeed with some Nexus hard discs the Printer Sharer will only work reliably once the partition has been moved (the move fixes the Sense code 87 problems which occur with some Quantum hard discs).

Once the print sharer partition has been moved in this way you **must** only use the version of PartEdit supplied on the disc included with this release, or a later version. Using an older version of PartEdit (including the one supplied on the Nexus Networking release discs dated 6th May 1994) is likely to cause loss of data from the Nexus private partitions. **You must always use PartEdit 2.77 or later once the printer partition has been moved.** ***All acceptable versions of PartEdit will be supplied on discs whose labels are printed in blue.***

On opening the main window of this version of PartEdit, you will be asked "Do you want to move your printer partition to the middle of the disc?" We recommend that you answer **Yes** to this question. You will then be asked "Do you want to keep the data on your private partitions?" Answering **Yes** to this question will move the private partitions into new locations on the hard disc, preserving the data on them; this takes about a minute per four megabytes, **a total of 12 minutes** for the current "default" configuration – during this period an hourglass with a percentage indication will be displayed. **Do not press Break during this process; interrupting this operation will corrupt your Nexus disc.** If you answer **No** to the question all the private partitions are reformatted, losing any data previously held there; this operation is almost instantaneous.

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